CHAPTER 8
OPERATIONS OTHER THAN WAR

In the early morning hours of 24 August 1992, Hurricane Andrew slammed into the southern tip of Florida. The eye of the hurricane passed directly over Homestead Air Force Base and the surrounding communities of Homestead and Florida City with an estimated wind speed of over 160 mph . . . .

Late on 27 August 1992, the XVIII Airborne Corps was alerted and directed to send a logistical task force to aid in the relief operations. The 20th Engineer Brigade was directed to begin deployment of forces and to have an airborne engineer battalion on the ground within 24 hours . . . .

During the time frame to deploy all military engineers, those units on the ground were busy with a varied amount of work. After the area's main roads were opened, debris operations became a lower priority mission. The clearing of areas for the establishment of disaster assistance centers (DACs), life-support centers (LSCs), mobile kitchen trailer (MKT) feeding sites, and the removal of associated trash and refuse from those areas, became priority tasks. Furthermore, the clearing of debris from schools grew in importance when local authorities decided to reopen them on 14 September 1992 . . . .

From "Hurricane Andrew: The 20th Engineer Brigade Perspective" by Major Robert M. Ralston and Lieutenant Colonel Douglas L. Horn, 20th Engineer Brigade, 1 October 1992.

INTRODUCTION

Organizing and training for war fighting remains the primary mission of the corps and its supporting engineers. However, the corps can be called upon to conduct OOTW. The corps commander and his staff quickly identify situations that may require the commitment of corps assets, including engineers, in OOTW missions. This facilitates planning and execution based on METT-T. Corps force-projection planning includes the possibility that forces committed to the OOTW mission may become involved with combat operations. Corps forces may conduct a wide variety of OOTW missions that may involve engineers, including—

- Arms control.
- Ž Attacks and raids.
- Combatting terrorism.
- Ž Disaster relief.
- Humanitarian assistance.

- Nation assistance.
- Support to insurgency and counterinsurgency.
- Noncombatant evacuation operations (NEOs).
- Peace operations.
- Demonstrations and shows of force.
- Security assistance.
- Support to civil authorities.
- Support to counterdrug operations.

All corps forces, including engineers, cooperate fully with and act in support of federal, state, and local civil authorities during domestic OOTW operations. Overseas, the corps stresses a unified effort with joint and multinational forces and with the host nation's civil, military and police agencies.

PRINCIPLES OF OPERATIONS OTHER THAN WAR

The doctrinally based principles of war (such as mass, maneuver, unity of command, and surprise) have withstood the tests of time and experience. However, they do not always apply to conducting activities other than warfare. The following OOTW principles have been developed for application by the corps based upon the mission and operational environment. Corps engineer considerations are also provided for each OOTW principle.

OBJECTIVE

In OOTW, as in war, the corps commander conducts a mission analysis that clearly defines attainable objectives for the corps. The obscure nature of OOTW may require multiple tasks involved in a single mission. The military objective may be political or humanitarian. The objective may be limited. Success is usually measured against the stated mission; however, there is a probability that the operation will expand (such as mission creep).

Corps engineer forces understand the corps's goals and objectives during OOTW Engineers are easily drawn into mission creep because of the unique equipment and personnel capabilities in support of OOTW. Engineers can help identify defined operational objectives. Engineer mission and project completion times can be used to determine the desired end state. Engineer commanders and their staffs should not expand their missions unless completing additional tasks is critical to accomplishing their primary missions. Engineers may have their objectives and missions expanded with each perceived success, as well as contracted with setbacks.

UNITY OF EFFORT

Unity of effort is more difficult to attain in OOTW than in war. In such operations, other government agencies will often have the lead. The environment may be multinational, interagency, or under another branch of government where a single chain of command does not exist. Therefore, the corps attempts to obtain unity of effort. Unity of effort involves extensive coordination cooperation, and liaison in the pursuit of common interests toward mission accomplishment. This is done in the face of divergent goals and political interests. The corps's primary task is consensus building it understands the capabilities and limitations of each service, agency and host-nation force as well as their legal and political requirements and limitations.

Corps engineers facilitate unity of effort by understanding and blending the various capabilities of military engineers and civilian contractors to meet mission requirements. Delineat-

ing engineer work areas helps avoid duplication of effort. The efficient use of engineer forces, equipment, construction materials, and repair parts increases force productivity.

LEGITIMACY

Legitimacy is the subjective judgment that authority is being exercised by the right people in the proper way for correct purposes. Legitimacy in OOTW involves three areas--the government or agency exercising authority, the presence of US forces in the AO, and the execution of law-and-order operations. The people of the assisted nation, the world populace, and the US public all perceive the legitimacy of the involvement of US forces differently. They all can extensively influence and effect an operation if legitimacy is not established and maintained. Corps OOTW activities support certain political objectives, affecting how both the host government and US forces are perceived by their respective publics. Whenever possible, the corps ensures that its operations enhance the legitimacy of the host nation and its armed forces in the eyes of the people of that nation. In cases where a legitimate government does not exist, the corps uses caution when dealing with individuals or organizations to avoid unintended legitimization of those individuals or organizations.

Corps engineers are well-suited for enhancing the legitimacy of the US presence during both short- and long-term OOTW missions. The visible construction and rehabilitation of public facilities, schools, water wells, and roads in support of OOTW objectives enhance the legitimacy of US forces in the eyes of the host-nation's public. USACE personnel and their contractors are well-respected throughout the world as a legitimate US government agency.

PERSEVERANCE

The corps plans to achieve its OOTW objectives as rapidly as possible. However, many causes of confl ict tend to be persistent and not quickly resolved. Conflict resolution is very time-consuming and may require a long-term commitment of corps forces. Corps elements employed in OOTW exercise adaptability, patience, determination, and perseverance in order to continue the mission for as long as required.

Corps engineers persevere in OOTW through versatility and agility to meet varied and quickly-changing mission requirements. Units supporting maneuver forces with combat engineering skills may have to construct logistics support facilities and structures on a moment's notice. Construction engineers may be required to breach urban obstacles with heavy equipment. Combat engineers may constantly breach land mines emplaced in the same stretch of road over many days and months. Maintaining supply routes with engineer equipment can become redundant in many OOTW scenarios. Corps engineers demonstrate perseverance and staying power through professionalism and technical and tactical competence in all assigned missions.

RESTRAINT

When a corps is committed to an OOTW mission, it will normally be constrained and limited by the terms of the mission statement, the terms of reference, and the rules of engagement (ROE). Restrictions on the type of force, the weapons used, and the ROE are established by the corps commander and clearly communicated to subordinate units in order to prevent the escalation of violence in an activity.

Corps engineer forces operate fully within the restraints defined by the corps commander. The ROE concerning the use of land mines, demolitions, and protective emplacements are clearly established and written by the corps engineer staff. Constraints on the use of host-nation engineer equipment, laborers, and construction materials are also identified.

SECURITY

All OOTW contain some degree of risk; therefore, regardless of mission, commanders secure their forces. The presence of corps forces will bring about a wide range of actions and reactions. Commanders take appropriate measures to ensure hostile factions, including terrorists and criminals, do not acquire an unexpected advantage. Seemingly benign situations may possess the inherent circumstances that place soldiers at risk. The OOTW threat is not always easily recognizable. Mission restraints and the ROE may limit response options. Corps force dispersion, diverse activities, and nontraditional OOTW tasks make force and individual soldier security difficult.

Corps engineers enhance OOTW security by understanding all ROE and mission constraints, securing their own forces at work sites and in base-camp locations, and providing force-protection construction support to the corps. This includes building protective structures, digging emplacements, and emplacing barriers and barricades. OOTW security also includes protecting the engineer force by safely operating engineer too;ls and equipment and by keeping engineer soldiers safe and healthy.

ENGINEER SUPPORT TO OPERATIONS-OTHER-THAN-WAR MISSIONS

Corps engineer support is fully integrated with corps OOTW planning processes. Versatile corps engineer forces provide unique personnel and equipment capabilities that can effectively support complex and sensitive situations in any corps OOTW. All OOTW situations relate directly to wartime corps engineer missions and tasks. In many cases, the only difference between a wartime engineer mission and an OOTW engineer mission is the threat level. The basic engineer tasks remain the same in both environment. FM 5-114 details engineer support to various OOTW missions.

ARMS CONTROL

Arms control focuses on promoting strategic military stability. It encompasses any plan, arrangement, or process that controls the numbers, types, and performance characteristics of weapons C2, logistics support, and intelligence-gathering systems.

Corps engineers may support arms-control operations by providing topographic and imagery products used to verify treaty compliance and by constructing logistics support facilities to hold and store weapons involved with the arms-control process. Corps engineers also assist EOD units in destroying munitions and hardware.

ATTACKS AND RAIDS

The corps conducts attacks and raids for specific purposes other than gaining or holding terrain. The corps conducts them to—

- Create situations that permit seizing and maintaining political initiative.
- Place considerable pressure on governments and groups supporting terrorism.
- Damage, destroy, or seize HVTs, equipment, or facilities that threaten national security interests.
- Demonstrate US capability and resolve to achieve a favorable result.
- Support counterdrug operations by destroying narcotics production or tr ansshipment facilities or by supporting host-nation activities in this arena.

Corps engineers construct rehearsal sites for the force involved in attacks and raids, Topographic engineers produce large-scale

photomaps or graphics to help guide forces to their objectives. Corps engineers participating in the mission may require refresher training in specialized skills such as air-assault techniques, military operations on urbanized terrain (MOUT), or reorganization to fight as infantry. During attacks or raids, corps engineers may be tasked to—

- Protect flanks, withdrawal routes, and landing zones.
- Emplace and man roadblocks.
- Breach obstacles.
- Move or destroy captured equipment.
- Use captured equipment to perform missions.

COMBATTING TERRORISM

Combatting terrorism has two major components: anti terrorism (defensive) and coun - terterrorism (offensive). The corps combats terrorism mainly through anti terrorism. This includes those active and passive measures taken to minimize vulnerabilities to terrorist attack. Anti terrorism is a form of force protection, which makes it the responsibility of all corps units and personnel. Counterterrorism is the full range of offensive operations against terrorists or those who support terrorists. The corps rarely conducts counterterrorism operations.

Corps engineers may become targets for terrorists because of how and where they perform their missions, especially construction projects and other wide-area missions. Equipment parks and supply yards are large and difficult to defend. Soldiers operating equipment or hauling materials are vulnerable to ambush by direct and indirect fires, mines, and booby traps, Corps engineer leaders support antiterrorism by—

- Developing a good IPB and EBA of threat forces.
- Establishing and enforcing sound operating procedures.
- Organizing security elements.
- Constructing secure LSAs and CPs.
- Constructing protective shelters for key facilities.
- Emplacing vehicle barriers.
- Clearing standoff zones around facilities.
- Erecting predetonation screens to protect units and installations.

DISASTER RELIEF

The corps participates in disaster-relief operations to promote human welfare and to quickly reduce the loss of life, pain and suffering, and destruction of property as a result of natural or man-made disasters. These operations may be a combination of joint, multinational, and interagency support. The corps continually coordinates and cooperates with local, state, federal, and nongovernmental agencies. This is critical for timely response in the disaster area. FM 100-19 provides further details for domestic support operations.

Corps engineers provide personnel and equipment capabilities that are extremely useful during disaster-relief operations in the following areas:

- Removing debris.
- Reestablishing utilities.
- Rebuilding LOC.

- Assisting with the distribution of aid, including food and clothing.

- Building temporary facilities and structures for displaced persons.

HUMANITARIAN ASSISTANCE

The corps possesses an ability to rapidly respond to emergencies that are caused by natural or man-made disasters or other endemic conditions such as human pain, disease, famine, or privation in countries or regions. The State Department approves most humanitarian-assistance operations and Congress funds them through specific appropriations. Corps commanders coordinate their efforts through the DOD, the United States Agency for International Development (USAID), and the US ambassador. The corps can be tasked to provide the C2 support necessary to plan and execute the ground portion of any hum anitari anassistance operation. The corps may be tasked to provide the logistics support necessary to relieve human suffering. It may also be tasked to provide forces to secure an area in order for the humanitarian-relief efforts of other agencies to proceed.

Corps engineer assistance may include constructing and repairing rudimentary surface-transportation systems, basic sanitation facilities, and rudimentary public facilities and utilities. Other tasks may include drilling water wells, constructing feeding centers, and disposing of human and hazardous waste.

NATION ASSISTANCE

Nation assistance includes the civil and military assistance actions (other than humanitarian assistance) rendered to a nation by the corps within that nation during war, conflict, and peace. Nation assistance supports the host nation's efforts to promote development, ideally through the use of host-nation resources. The goals of nation assistance are to promote long-term stability; to develop sound and responsive democratic institutions; to develop a supportive infrastructure; to promote strong, free-market economies; and to provide an orderly political change and economic-progress environment. All corps nation-assistance actions are integrated through the US ambassador's country plan and the CINC's regional plan. These goals can only be met through education and transfer of essential skills to the host nation. To be effective in meeting these goals, the host nation must develop a sense of ownership of nation-assistance actions and projects.

Typical corps engineer missions in support of nation-assistance operations include the following:

- Engineer staff visits and exchanges of engineer subject-m atter experts (SMEs) between the US and the foreign nation to discuss specific engineer topics.

Ž The exchange of engineer officers and NCOs to work in the host-nation's army.

Ž Deployments of engineer units to perform multinational engineer training with the host-nation's military. This training may include the construction of roads, airfields, structures, and ports; well drilling; construction-material production; and topographic engineering.

SUPPORT TO INSURGENCY AND COUNTERINSURGENCY

At the direction of the National Command Authority (NCA), the corps may assist either insurgent movements or the host-nation government opposing an insurgency. In both cases, the corps predominantly supports political and economical objectives. Through SOF, the corps covertly supports insurgences that oppose repressive regimes that work against US interests. The corps provides overt support to a host-nation's counterinsurgency operations through logistical and training support in

concert with the US ambassador's country plan.

Corps engineer support to insurgency forces is limited to providing topographic products and constructing SOF operating bases located outside the AO. Corps engineer missions for counterinsurgency operations are similar to those for humanitarian and nation assistance. They include water supply and sanitation improvements; road, airfield, and port construction; and multinational training.

NONCOMBATANT EVACUATION OPERATIONS

NEOs are conducted to evacuate threatened US and authorized host-nation or third-country citizens from locations in a foreign nation or a safe haven. A NEO involves swift, temporary occupancy of an objective. It ends with a preplanned withdrawal. If the use of force is involved, the minimum amount of force to accomplish the mission will be used. A NEO is normally conducted as a joint operation by the corps and sometimes involves multinational forces.

Corps engineers that support a NEO generally operate as part of a joint force and may conduct a wide variety of tasks, including—

- Constructing temporary facilities and protective structures in country or in another country for either US forces or the evacuees.
- Providing needed topographic products and data for the operation.
- Conducting route reconnaissance and mobility operations for land evacuation.
- Repairing airfields and clearing helicopter landing zones for use in air-evacuation operations.

PEACE OPERATIONS

Peace operations encompass three types of predominantly diplomatic activities: preventive diplomacy, peacemaking, and peace building. It also includes two complementary, predominantly military activities--peacekeeping and peace enforcement. Corps engineer involvement in shows of force, preventive deployments, military-to-military relations, and security-assistance programs all support preventive diplomacy and peacemaking efforts. Corps engineers support peace building primarily through postconflict missions such as repairing utilities and roads, FM 100-23 provides further details for peace operations.

Peacekeeping Operations

Peacekeeping operations (PKOs) support diplomatic efforts to establish or maintain peace in areas of potential or actual conflict, They are undertaken with the consent of all belligerents, Corps PKO forces monitor and facilitate the implementation of an existing truce or ceasefire and they support diplomatic efforts to reach a long-term political settlement. Strict appearance of neutrality, an adequate means of self-protection, and the avail ability of timely and effective support are critical. The corps may be tasked to conduct PKOs over a considerable time period, under multinational control (such as the United Nations (UN)), or under a unilateral peacekeeping umbrella.

Corps engineer missions in PKOs range from facilities construction to minefield clearance. The size and composition of the corps engineer unit will vary depending on the specific tasks that the unit must perform. If the force is moving into an area with no facilities, the requirement for construction engineering skills will depend on whether the force will construct its own facilities, another country's engineers will construct them, or the work will be contracted. If the peacekeeping force moves into existing facilities, the requirement for construction skills will depend on who is tasked to maintain the facilities. Although the require-

ment for combat engineers maybe small, there is a possible need for this type of force to construct barriers, provide assistance and training in engineering skills, or conduct countermine operations, either in contested areas or along peacekeeping-force patrol routes. The majority of engineer operations fall into one of two categories: general engineering and combat engineering support.

General engineer missions include those tasks that support the force through the construction and repair of billeting, support and logistics facilities, as well as LOC. These tasks may include constructing, maintaining, and operating electrical and sanitation utilities as well as locating water sources, operating reverse osmosis water purification units, and drilling wells, if necessary for water supply. General engineering support must be in accordance with agreements between the parties in the conflict and the host nations, as applicable, and must comply with Title 10, USC 401 unless support is provided under Section 551 of the Foreign Assistance Act of 1961 (22 USC 2348).

The purpose of general engineering is to provide an adequate support base for the peacekeeping force. The base must provide secure and healthy living conditions. It must provide sufficient administrative and maintenance space for the units supporting the force and secure storage for all associated supplies and material.

Specific general engineering missions include —

- Base-camp construction.
- Air bases, ports, and other logistics facilities construction.
- LOC construction.
- Potable water-source development.
- Base and LOC maintenance.

There are several construction missions essential for PKOs. These missions include constructing observation posts (OPs), checkpoints, and roadblocks.

Combat engineering tasks (such as mobility, countermobility and survivability tasks) may be conducted by US engineer units in support of PKOs. Engineer missions specifically related to PKOs include—

- Constructing CPs, bunkers, and OPs.
- Constructing force-protection structures such as earth revetments, wire obstacles, and defensive positions.
- Clearing fields of observation.
- Demolishing fortifications.
- Clearing or marking minefield (including minefield-fence maintenance).
- Clearing mines and booby traps.
- Providing backup support for identifying, marking, removing, or destroying explosive ordnance.

Peace-Enforcement Operations

Peace-enforcement operations (PEOs) are military intervention operations in support of diplomatic efforts to restore peace or to establish conditions for conducting PKOs. PEOs are intended to halt violence and restore more normal civil activities. PEOs seek to restore order and political and diplomatic dialogue. Unlike PKOs, in PEOs the consent of all belligerents will not be obtained. Typically, one or more of the belligerents will not be in favor of employing PEO forces. When conducting PEOs, the corps deploys sufficient combat power to present a credible threat, to protect the force, and to conduct the full range of combat operations necessary to restore order and to separate warring factions when required. PEOs are nor-

really conducted in cooperation with other counties and agencies but may be unilateral in scope.

Corps engineers support PEOs with—

- Combat engineer missions in support of combat operations.
- Topographic engineering support.
- Lodgment and theater infrastructure development, including the construction and repair of protective facilities, roads, airfields, ports, and troop life-support facilities.

DEMONSTRATIONS AND SHOWS OF FORCE

Demonstrations and shows of force portray American resolve in a situation vital to our national interests to potential adversaries. They can take the form of multinational training exercises, rehearsals, forward staging of units, or force buildup in the AO. A corps's involvement in a show of force may range in size and scope from a publicized, heightened state of alert at the home station to the completion of an unopposed force-projection entry into the AO. The corps must plan for the possibility of a show of force deteriorating into a combat operation. Political concerns dominate shows of force.

Corps engineer support to demonstrations and shows of force is normally a joint and multinational effort. Corps engineer tasks are very similar to the ones described in Chapter 3. The overt use of engineer forces during shows of force may aid in the operation's political intent.

SECURITY ASSISTANCE

Security assistance provides defense material, military training, and defense-related services by grants, loans, creditor cash sales to further national policies and objectives. Security-assistance operations do not normally have an impact on a corps. When they do have an impact on a corps, it is normally through the Security Assistance Training Program (SATP). The two primary subcomponents of this program are the International Military Education and Training Program (IMETP) and the Foreign Military Sales Program (FMSP). However, in cases where security assistance must be surged to meet urgent operational requirements, the corps may be required to supervise the preparation and transfer of major end items of equipment by subordinate corps units to a foreign nation.

Corps engineers may be involved with security assistance by constructing required logistics facilities that support the FMSP. Corps engineer mobile training teams are also able to support the IMETP.

SUPPORT TO CIVIL AUTHORITIES

These operations provide temporary support to domestic civil authorities when permitted by law. They are normally taken when an emergency overwhelms the capabilities of civil authorities. The type of support provided by the corps is divided into four categories: disaster relief, environmental assistance, community assistance, and law enforcement.

Corps engineer forces may be called upon to support civil authorities in various missions such as fighting forest fires, removing snow, removing hazardous wastes, providing riot control, and constructing emergency bridges and airfields. FM 100-19 describes in detail how corps engineers support civil authorities.

SUPPORT TO COUNTERDRUG OPERATIONS

Because of US Code restrictions, the corps does not normally participate in domestic counterdrug operations. National Guard corps units may participate in counterdrug operations while under the state's control. The corps may become involved with cooperating foreign governments to interdict the flow of illegal drugs at the source, in transit and during distribution. Corps support of foreign counterdrug op-

erations is normally coordinated by the CINC of the region, his special-operations command, and a country's military-assistance groups. The corps will normally supervise the preparation, deployment, and possible sustainment of small specialized units to meet CINC or SOF shortfalls.

Corps engineers supporting domestic counterdrug operations perform missions focused on supporting local law-enforcement agencies. Engineers are sensitive to the legal aspects of support to civilian authorities and abide by the Posse Comitatus Act. They are also aware of the capabilities of the threat, which is primarily heavily armed narcotics traffickers. Typical support tasks include—

- Constructing or rehabilitating law-enforcement target ranges; helipads; and fuel-storage, billet, CP, and maintenance facilities.

Ž Producing photomaps and other topographic products of likely counterdrug operations areas.

Ž Constructing or upgrading access roads for drug-interdiction patrols.

Ž Clearing observation fields for counterdrug teams.

ENGINEER CONSIDERATIONS

OOTW are joint, multi agency, and multi national efforts. Effective engineer liaison with all involved military units and civilian agencies is critical to mission success. The corps engineer tailors engineer support based on mission requirements. This support may be radically different than for supporting combat operations. The following discussion highlights key corps engineer OOTW considerations:

ENGINEER ASSESSMENT

An early, on-the-ground assessment by corps engineer forces is critical to properly tailor and logistically support the follow-on engineer OOTW force. Results of this assessment are quickly passed to deployment planners to ensure that an adequate engineer support force arrives in the AO in a timely manner. Failure to provide an adequate and timely engineer force may cause inadequate troop bed down, sanitation, and force protection to the deployed force. This early, on-the-ground engineer assessment identifies—

Threat engineer capabilities in likely lodgment areas, including combat engineering requirements for force protection, countermine, counterobstacle, and early-entry force support operations.

The status of the infrastructure in the AO, including airfield, road, port, logistics base, and troop bed-down facilities; real estate acquisition; construction material supply; construction management; and line-haul requirements.

Existing topographic product availability and requirements for new terrain visualization products.

Specialized engineer requirements such as prime-power, fire-fighting, water-detection, and well-drilling support.

Engineer C2 requirements, including headquarters staffing, communications, and information systems support.

Ž Engineer liaison requirements, including linguists and civil-affairs personnel.

• Mission objectives and end-state, mission-success, and liaison procedures.

• Requirements for officers with contracting officer's representative (COR) or USACE experience.

Ž The use of LOGCAP, contractor responsibilities, contract construction procedures, and initial work areas.

JOINT ENGINEER COMMAND AND CONTROL

Because of the joint, multi agency, and multinational nature of OOTW, a key consideration is how various engineer forces are commanded and controlled. At the joint and multinational staffing level, the engineer staff should be placed under the operational (J3) staff or as a separate SES. Engineers should avoid being placed under the auspices of the joint or multinational logistics (J4) staff. Lessons learned from continuing OOTW deployments show that when staff engineers are placed under the J4, engineers are tied up supporting logistics forces in theater at the expense of maneuver and other deployed units. A separate engineer headquarters should be identified to command and control diverse OOTW engineer support.

TOPOGRAPHIC SUPPORT

By their nature, OOTW missions are normally conducted in areas of the US and the rest of the world that have limited up-to-date topographic coverage from the DMA; the United States Geological Survey (USGS); and other civilian, allied, and host-nation sources. It is critical that the corps engineer ensures that the following functions are accomplished when providing topographic support to a corps JTF or ARFOR OOTW mission:

• Evaluate the availability of standard and nonstandard map products in the OOTW's AO. If shortfalls exist, the corps engineer and the Intelligence Directorate (J2) or ARFOR G2 define specific requirements and coordinate the collection and creation of necessary data to build the JTF or ARFOR topographic data base.

• Coordinate with the J2/J3 or the ARFOR G2/G3 for the early collection of terrain information in the OOTW's AO through reconnaissance, topographic survey, and satellite imagery.

Ž Ensure that terrain analysis and topographic reproduction capability are available early to the JTF or ARFOR or provided through split-basing these capabilities from CONUS locations.

• Establish a topographic-product storage-and-distribution capability in the OOTW's AO in conjunction with the J4 or ARFOR G4.

Ž Establish special topographic product procedures with SOF and other deployed forces.

CONSTRUCTION SUPPORT

OOTW missions are normally conducted following the destruction of the area's infrastructure because of man-made or natural disasters or conflicts between warring factions. OOTW highlight the requirement for engineers to establish some type of bare-base infrastructure that supports deployed forces or displaced civilians with minimal life support and a protected, healthy, and safe environment. Sanitary living and working areas are usually nonexistent. Water supplies are usually contaminated. Electric power grids are normally off-line. Airfields and ports may not be operating at full capacity due to damage. Criminal activity may be widespread. The corps engineer en-

sures that the following functions are accomplished when providing construction support to a corps JTF or ARFOR OOTW mission:

- Ž Determine the status, availability, and acquisition procedures for existing infrastructure facilities, utilities, airfields, ports, roads, and construction materials in the OOTWs AO.
- Ž Estimate minimal engineer construction standards for life support and force protection, including the need for base-camp packaging such as Force Provider. Define the construction end state with the JTF or ARFOR commander. Avoid mission creep.
- • Determine what construction will be conducted by US or host-nation military engineers or civilian contracting through LOGCAP, based on deployment time lines and the threat level.
- • Ensure that the JTF or ARFOR has adequate. construction-management capability in the OOTW's AO, including the use of joint, ENCOM, or USACE augmentation teams.
- • Ensure that joint, ENCOM, or USACE real estate acquisition teams are deployed.
- Ž Conduct thorough terrain analysis to ensure adequate construction-site drainage, heavy-equipment access, and protection.
- Ž Ensure that required construction materials are procured and shipped in a timely manner to meet initial deployed force-protection and life-support needs. Flow in construction materials with deploying forces. Establish with the JTF J4 or ARFOR G4 specific construction-material yard locations and requisition and distribution procedures.

COUNTERMINE OPERATIONS

It is estimated that there are more than 100 million uncleared land mines spread throughout 62 countries. This equates to approximately one land mine for every 50 people on our planet. Land mines are cheap and easily obtained or constructed. They have become the third world's weapon of choice. They directly threaten civilian populations and corps forces during OOTW missions. US forces do not conduct demining operations; they clear mines only as required for military operations. It is critical that the corps engineer ensures that the following functions are accomplished when providing countermine support to a corps JTF or ARFOR OOTW mission that is threatened with land mines:

- Ž Work closely with the JTF J2 or ARFOR G2 to determine the land-mine threat in the OOTW's AO. Publish mine-recognition handbooks for deploying forces. Exploit all sources of intelligence to identify mined areas in the OOTW's AO.
- Ž Ensure that deployed forces are trained to identify, mark, and report encountered land mines.
- Ž Ensure that engineers are fully confident in the employment of countermine equipment and that the equipment is operational. Conduct land-mine detection, marking, and removal training for soldiers conducting countermine missions.
- Ž Provide necessary individual protective equipment and mine-resistant vehicles to soldiers conducting countermine operations.
- Ž Establish, disseminate, and enforce route and area land-mine clearance and marking procedures for the OOTW's AO. Include these procedures with established ROE.

FORCE PROTECTION

Corps engineers have unique equipment and personnel capabilities that can be used to support deployed force-protection efforts during OOTW missions. Engineers construct protective facilities, bunkers, emplacements, vehicle barriers, fences, and other structures needed to protect the force. The corps engineer ensures that the following functions are accomplished when providing force-protection support to a corps JTF or ARFOR operation:

- Establish with the JTF or ARFOR commander the required level of protection needed in the OOTW's AO, based on the expected threat.
- Develop force-protection construction standards for operating and life-support bases, including the need for security fencing, lighting, obstacles, and guard posts.

Ž Ensure that adequate force-protection construction materials are provided to early-entry forces.

- Establish facility security-inspection procedures with military and local law-enforcement personnel to quickly identify and repair breaches.